WHAT IS CLAIMED IS:

1'. A method for generating a transcriptionally active DNA molecule, comprising polymerase chain reaction (PCR) amplification of said DNA molecule in the presence of a first DNA fragment (F1), second DNA fragment (F2), first primer (P1), a second primer (P2), a third primer (P3), and a fourth primer (P4) wherein:

F1 comprises a promoter sequence;

F2 comprises a terminator sequence;

P1 is complementary to the 5 end of F1;

P2 is complementary to the find of F2;

P3 comprises a first region complementary to the 3' end of F1 and a second region complementary to the 5' end of said DNA molecule;

P4 comprises a first region complementary to the 3' end of F2 and a second region complementary to the 3' end of said DNA molecule, whereby a transcriptionally active DNA molecule is produced by said PCR amplification.

- 2. The method of Claim 1, wherein F1 is the cytomegalovirus IE promoter.
- 3. The method of Claim 1, wherein said transcriptionally active DNA molecule encodes a therapeutic gene.
- 4. The method of Claim 1, further comprising the step of adding a PNA tail to the 5'-end of P1 and P2 prior to said PCR amplification.
- 5. The method of Claim 1, further comprising the step of adding a PNA clamp to said transcriptionally active DNA molecule after said PCR amplification.
- 6. The method of Claim 1, further comprising the step of adding a PNA molecule via a linker (PNA clamp tail) to primers P1 and P2 prior to said PCR amplification.
- 7. The method of Claim 1, wherein a thymidine base immediately precedes said region of complementarity between said third primer P3 and said first DNA fragment F1.
- 8. The method of Claim 1, wherein a thymidine base immediately precedes said region of complementarity between said fourth primer P4 and said second DNA fragment F2.

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